AMENDMENTS TO THE CLAIMS

Claim 1. (currently amended) A method for inducing arteriogenesis, lymphangiogenesis, vasculogenesis, or cardiomyogenesis, comprising administering to a ~~cell or tissue~~ cardiomyocyte or tissue comprising cardiomyocytes in need thereof a dose of a polynucleotide that encodes ~~a~~ the vascular endothelial growth factor, VEGF-165 ~~(VEGF)~~, or that encodes a polypeptide comprising an active site of the VEGF-165, wherein the coding sequence is operably linked to a CMV promoter and is in a plasmid vector, ~~an expression control sequence~~, the dose being sufficient to induce arteriogenesis, lymphangiogenesis, vasculogenesis, or cardiomyogenesis.

Claim 2. (currently amended) The method of claim ~~1~~100, wherein the ~~VEGF is~~ VEGF1-165~~, whose~~ has the amino acid sequence ~~is~~:

AlaPro Met Ala Glu Gly Gly Gly Gln Asn
HisHis Glu Val Val Lys Phe Met Asp Val
TyrGln Arg Ser Tyr Cys His Pro Ile Glu
ThrLeu Val Asp Ile Phe Gln Glu Tyr Pro
Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser
Cys Val Pro Leu Met Arg Cys Gly Gly Cys
Cys Asn Asp Glu Gly Leu Glu Cys Val Pro
ThrGlu Glu Ser Asn Ile Thr Met Gln Ile
Met Arg Ile Lys Pro His Gln Gly Gln His
Ile Gly Glu Met Ser Phe Leu Gln His Asn
Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg
AlaArg Gln Glu Asn Pro Cys Gly Pro Cys
Ser Glu Arg Arg Lys His Leu Phe Val Gln
Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys
Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln
Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys
Asp Lys Pro Arg Arg (SEQ ID NO: 1).

Claim 3. (withdrawn) The method of claim 1, wherein arteriogenesis is induced.

Claim 4. (original) The method of claim 1, wherein cardiomyogenesis is induced.

Claim 5. (withdrawn) The method of claim 3, wherein the arteriogenesis is induced in vitro, in vivo, or ex vivo.

Claim 6. (withdrawn) The method of claim 3, wherein the induced arteriogenesis is localized.

Claim 7. (withdrawn) The method of claim 3, wherein the arteriogenesis is induced in normoperfused tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 8. (withdrawn) The method of claim 3, wherein the arteriogenesis is induced in ischemic tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 9. (withdrawn) The method of claim 3, wherein the arteriogenesis is induced in myocardial tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 10. (original) The method of claim 4, wherein the cardiomyogenesis is induced *in vitro*, *in vivo*, or *ex vivo*.

Claim 11. (original) The method of claim 4, wherein the induced cardiomyogenesis is localized.

Claim 12. (original) The method of claim 4, wherein the cardiomyogenesis is induced in normoperfused tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 13. (original) The method of claim 4, wherein the cardiomyogenesis is induced in ischemic tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 14. (original) The method of claim 4, wherein the cardiomyogenesis is induced in myocardial tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claims 15-18. (canceled)

Claim 19. (original) The method of claim 1, wherein the cell or tissue is eukaryotic.

Claim 20. (original) The method of claim 1, wherein the cell or tissue is mammalian.

Claim 21. (original) The method of claim 1, wherein the cell or tissue is porcine or human.

Claim 22. (original) The method of claim 1, wherein the cell or tissue is human.

Claim 23. (original) The method of claim 1, wherein the polynucleotide is a genomic DNA, a cDNA, or a messenger RNA.

Claim 24. (original) The method of claim 23, wherein the polynucleotide encodes the polypeptide represented by SEQ ID NO: 1.

Claim 25. (original) The method of claim 24, wherein the polynucleotide is a cDNA.

Claim 26. (original) The method of claim 23, wherein the polynucleotide encodes a polypeptide comprising an active site of the polypeptide represented by SEQ ID NO: 1.

Claim 27. (original) The method of claim 26, wherein the polynucleotide is a cDNA.

Claims 28-30. (canceled)

Claim 31. (original) The method of claim 1, wherein the polynucleotide is administered to the cell or tissue in a liposome.

Claim 32. (canceled)

Claim 33. (original) The method of claim 1, which is carried out *in vivo*, and wherein a sufficient dose of the polynucleotide is administered to a subject in need of such treatment to induce arteriogenesis, lymphangiogenesis, vasculogenesis, or cardiomyogenesis.

Claim 34. (currently amended) The method of claim 33, wherein the subject exhibits signs or symptoms of, or suffers from, ischemic heart disease, myocardial infarction, myocardial ischemia, dilated cardiomyopathy, or hypertrophic cardiomyopathy.

Claim 35. (original) The method of claim 33, wherein the subject is a human patient.

Claim 36. (original) The method of claim 33, wherein the polynucleotide is in the form of a pharmaceutical composition.

Claim 37. (currently amended) The method of claim 33, wherein the polynucleotide is administered by a parenteral~~, sublingual, inhalatory, oral or rectal~~ route.

Claim 38. (currently amended) The method of claim 37, ~~wherein the administration is parenteral,~~ comprising administering the polynucleotide in vehicles that are microbubbles, and then disrupting the microbubbles by ultrasound directed at a site of interest, such that the polynucleotide is released at and introduced into the site of interest.

Claim 39. (currently amended) The method of claim 37, wherein the administration is ~~parenteral and is~~ intravascular, intracelomic, intramuscular, ~~subcutaneous, intraspinal, topical~~ or intracardiac administration.

Claim 40. (original) The method of claim 39, wherein the administration is intravascular and is intravenous or intra-arterial administration.

Claim 41. (original) The method of claim 40, wherein the administration is intra-arterial and is intracoronary, intra-aortic, intrafemoral, intrapopliteal, intrapedialis, intra-posterior tibialis, intracarotideal or intraradialis administration.

Claim 42. (currently amended) The method of claim 39, wherein the administration is intracelomic and is intrapericardial ~~, intraperitoneal, intra-amniotic sac or intrapleural administration~~.

Claim 43. (currently amended) The method of claim 39, wherein the administration is intramuscular and is intramyocardial ~~or intra-peripheral~~ muscle administration.

Claim 44. (currently amended) The method of claim 43, wherein the administration is ~~intramyocardial and is~~ transepicardial or transendocardial administration.

Claim 45. (withdrawn) The method of claim 39, wherein the administration is topical and is periadventitial, perivascular, epicardial, epidermal, transdermal, ophthalmic or mucous absorption administration.

Claim 46. (withdrawn) The method of claim 45, wherein the administration is by mucous absorption and is administration through a conjunctival, nasopharyngeal, bucopharyngeal, laryngopharyngeal, vaginal, colonic, urethral or vesicle mucosum.

Claim 47. (withdrawn) The method of claim 46, wherein the administration is by absorption through the bucopharyngeal mucosum and is through a yugalis, gingivoyugalis or gingivolabialis mucosum.

Claim 48. (original) The method of claim 39, wherein the administration is intracardiac and is intra-atrial or intraventricular administration.

Claim 49. (original) The method of claim 48, wherein the administration is intra-atrial and is intra-left atria administration or intra-right atria administration.

Claim 50. (original) The method of claim 48, wherein the administration is intraventricular and is intra-left ventricle administration or intra-right ventricle administration.

Claim 51. (original) The method of claim 33, wherein the administration is intramyocardial-transepicardial injection under direct visualization, or intramyocardial-transendocardial injection under fluoroscopic guidance.

Claim 52. (currently amended) The method of claim ~~33~~43, wherein the polynucleotide is administered by injection perpendicular to the plane of the area of injection.

Claim 53. (currently amended) The method of claim ~~33~~43, wherein the polynucleotide is administered by injection parallel to the plane of the area of injection.

Claim 54. (currently amended) The method of claim ~~33~~43, wherein the polynucleotide is administered by injection at an oblique angle in relation to the plane of the area of injection.

Claim 55. (original) The method of claim 54, wherein the angle in relation to the plane of the area of injection is between about 30° and about 90°.

Claim 56. (currently amended) The method of claim ~~33~~43, wherein the polynucleotide is administered by injections that are homogeneously or heterogeneously distributed in the area of injection.

Claim 57. (currently amended) The method of claim 33, wherein the polynucleotide that is administered ~~sequence~~ encodes VEGF1-165, whose amino acid sequence is represented by SEQ ID NO: 1.

Claim 58. (currently amended) The method of claim 33, wherein the polynucleotide sequence encodes a polypeptide comprising an active site of the polypeptide represented by SEQ ID NO: 1.

Claim 59. (original) The method of claim 33, wherein the polynucleotide is administered in a single dose of between about 0.008 and about 0.36 nmoles /kg, wherein the nmoles are of polynucleotide encoding an active VEGF polypeptide.

Claim 60. (original) The method of claim 59, wherein the polynucleotide is administered in a single dose of about between about 0.01 and about 0.10 nmoles/kg.

Claim 61. (original) The method of claim 59, wherein the polynucleotide is administered in two or more doses, to achieve a total dose of between about 0.008 and about 0.36 nmoles /kg.

Claim 62. (original) The method of claim 61, wherein the polynucleotide is administered in two or more doses, to achieve a total dose of between about 0.01 and about 0.10 nmoles/kg.

Claim 63. (canceled)

Claim 64. (currently amended) The method of claim ~~63~~1, wherein the concentration of the ~~pUVEK15VEGF~~ plasmid vector is between about 0.5 and about 4 mg/mL.

Claim 65. (currently amended) A method for inducing mitosis or proliferation of a ~~smooth muscle cell, a skeletal muscle cell, or a~~ cardiomyocyte, comprising administering to the cell a dose of a polynucleotide that encodes ~~a~~the vascular endothelial growth factor ~~(VEGF)~~, VEGF-165, or that encodes a polypeptide comprising an active site of the VEGF-165, wherein the coding sequence is operably linked to ~~an expression control sequence~~a CMV promoter and is in a plasmid vector, the dose being sufficient to induce the mitosis or proliferation.

Claim 66. (currently amended) The method of claim ~~65~~101, wherein the ~~VEGF is~~ VEGF1-165, ~~whose~~has the amino acid sequence ~~is~~:

AlaPro	Met	Ala	Glu	Gly	Gly	Gly	Gln	Asn
HisHis	Glu	Val	Val	Lys	Phe	Met	Asp	Val
TyrGln	Arg	Ser	Tyr	Cys	His	Pro	Ile	Glu
ThrLeu	Val	Asp	Ile	Phe	Gln	Glu	Tyr	Pro

Asp	Glu	Ile	Glu	Tyr	Ile	Phe	Lys	Pro	Ser
Cys	Val	Pro	Leu	Met	Arg	Cys	Gly	Gly	Cys
Cys	Asn	Asp	Glu	Gly	Leu	Glu	Cys	Val	Pro
ThrGlu	Glu	Ser	Asn	Ile	Thr	Met	Gln	Ile	
Met	Arg	Ile	Lys	Pro	His	Gln	Gly	Gln	His
Ile Gly	Glu	Met	Ser	Phe	Leu	Gln	His	Asn	
Lys	Cys	Glu	Cys	Arg	Pro	Lys	Lys	Asp	Arg
AlaArg	Gln	Glu	Asn	Pro	Cys	Gly	Pro	Cys	
Ser Glu	Arg	Arg	Lys	His	Leu	Phe	Val	Gln	
Asp	Pro	Gln	Thr	Cys	Lys	Cys	Ser	Cys	Lys
Asn	Thr	Asp	Ser	Arg	Cys	Lys	Ala	Arg	Gln
Leu	Glu	Leu	Asn	Glu	Arg	Thr	Cys	Arg	Cys
Asp	Lys	Pro	Arg	Arg	(SEQ ID NO: 1).				

Claims 67-68. (canceled)

Claim 69. (original) The method of claim 65, wherein the cardiomyocyte is in a cardiac tissue.

Claim 70. (canceled)

Claim 71. (original) The method of claim 65, wherein the mitosis or proliferation is induced *in vitro*, *in vivo*, or *ex vivo*.

Claim 72. (original) The method of claim 65, wherein the cell or tissue is eukaryotic.

Claim 73. (original) The method of claim 65, wherein the mitosis or proliferation is localized mitosis or proliferation.

Claim 74. (original) The method of claim 65, wherein the mitosis or proliferation is induced in normoperfused tissue, *in vivo*, *in vitro*, or *ex vivo*.

Claim 75. (original) The method of claim 65, wherein the mitosis or proliferation is induced in ischemic tissue, *in vivo*, *in vitro*, or *ex vivo*.

Claim 76. (original) The method of claim 65, wherein the mitosis or proliferation induces tissue regeneration, *in vitro*, *in vivo*, or *ex vivo*.

Claim 77. (original) The method of claim 76, wherein the tissue is normoperfused tissue.

Claim 78. (original) The method of claim 76, wherein the tissue is ischemic tissue.

Claim 79. (original) The method of claim 76, wherein the tissue is myocardial tissue.

Claim 80. (original) The method of claim 76, wherein the tissue is hypoperfused tissue.

Claims 81-97. (canceled)

Claim 98 (new) The method of claim 59, wherein the polynucleotide is administered in a single dose of greater than about 0.04 mg/kg.

Claim 99. (new) The method of claim 98, wherein the polynucleotide is administered in two or more doses, to achieve a total dose of greater than about 0.04 mg/kg.

Claim 100 (new) The method of claim 1, wherein the polynucleotide that is administered encodes VEGF-165.

Claim 101 (new) The method of claim 65, wherein the polynucleotide that is administered encodes VEGF-165.

Claim 102 (new) The method of claim 1, which is a method to reduce infarct size.

Claim 103 (new) The method of claim 4, wherein the cardiomyogenesis is induced in hypoperfused tissue, *in vitro*, *in vivo*, or *ex vivo*.

Claim 104 (new) The method of claim 65, wherein the mitosis or proliferation is induced in hypoperfused tissue, *in vitro*, *in vivo*, or *ex vivo*.